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SOURCE DOCUMENTARY

On file in the CIA Library is a copy of a booklet (27 pages) entitled "Operation and Care of JAWA 250 ccm Motorcycle." The booklet was issued by the Brno Arms Factory, National Corporation, Works Prague-Nusle II, and it contains full technical specifications as well as detailed instructions for care and operation.

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Operation and care of
JAWA 250 ccm motorcycle.

Brno Arms Factory,
National Corporation,

Works Prague-Nusle II.

Phone 963-51

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C o n t e n t s

Introduction:

These are Directions for using Your 250 cu.cm. JAWA Motorcycle. It is a new model, both as regards its design and capacity, whose perfect, up-to-date construction is the result of many year's experience of the designers of our motor cycles industry. JAWA is a world renowned mark with a great tradition in sport and in service to motorists. This is proved by an ixtensive collection of trophies gained by JAWA in international races -and reliability trials as well as the most valuable trophy, its good repute and satisfaction of the customers.

We are convinced that your 250 cu.cm.JAWA will comply with all your requirements. It is a beautiful machine and it deserves -your attention and a thorough inspection of all its component parts, their functions and use. This is very important if you want the machine to serve properly, to last long and become a permanent source of your satisfaction.

We wish you thousands of nice and joyfull miles.

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Technical Descriptions :

Foot starter at the left of the engine; foot operated change mechanism housed in gearbox.
Frame of steel, rigid, welded of square tubes.
Telescopic fork with spiral springs and forming headlamp shell.
Wheels easily removable, rims 2 1/4 x 19, tyres 3,00" x 19",
Mudguards: front fixed, rear guard with hinged tail piece.
Internal expanding brakes dia 150 mm, 25 mm wide.
Saddle comfortable, rubber-sprung with frictional shock absorber. Tension of spring adjustable to the weight of the rider.
Footrests adjustable.
Telescopic rear springing fully enclosed of very simple design.
Handlebars dia 22 mm, 700 mm wide adjustable.
Fuel tank, capacity 3 imp.gallons, with 60 mm dia. Filler cap.
Lights 35/35W, long distance, dimmed city, parking and rear.
Length over all 2000 mm, height 950 mm, width 700 mm
1 79 " 37,5" 27,5 "
Weight of the machine 220 - lbs.
Admissible load; 336 lbs, Maximum speed 65 miles per hour
Fuel consumption at an average speed of 38 miles per hour
..... miles per gallon.

Riding hints.

1/ It is obviously needless to say that it is necessary to make sure before taking a trip whether there is fuel in the tank. Before starting, therefore, open the filling cap of the fuel tank by turning the closing cap to the left and lifting it to ascertain the level of petrol. Before putting gasoline in, mix it first with mobiloil D in the proportion of 1 : 25. Close the tank by putting the cap on and screwing it down to the right. The small opening in the middle of the cap should be protected from being clogged by impurities. A reserve of fuel always remains in the right hand half of the tank, which is sufficient for abt. 10 miles. If need be, the fuel can be passed, by tilting the machine to the left, over to the left hand half from where it drains to the carburettor.

2/ Push the key into the switch box. If the battery is in good condition the red control light will start burning. Ascertain whether any of the lights indicating that the speeds are engaged is alight. If the neutral is pushed in correctly, the bulb "N" will be alight. If the gear is pushed in the second neutral /between the third and fourth gear/ only the control light of the battery will be alight. In that case change over to the proper neutral position between the first and second gear. If the bulb indicating the engaged gear isa alight, change over always to the neutral. The machine can however be started up even with the gear engaged by disengaging the clutch by hand /for instance if the foot control fails/.

3/Close air intake of the carburettor by turning the cover of the cleaner, which is to be opened again after the engine is warmed up.

4/ Open the fuel tap and press down the tickler pin of the carburettor several times which ensures a rich mixture. /Do not overflood unless the engine is cold since a warm engine would get rich mixture and be difficult to start/.

5/ Turn the right twist grip toward you by about a 1/2 turn.

6/ Start the machine up by your right of left foot /whichever you are most accustomed to/. As soon as the engine starts running, decrease its speed by turning the gas grip to the closed position. The carburettor should merely be adjusted so that the engine, just ticking over with the twist grip in fully closed position, works at the lowest speed without stopping. /For adjustment see the paragraph "Carburettor".

7/ When starting running pull the clutch lever with your left hand, engage the first gear by the point of your left foot, by moving the lever of the foot control upwards, and release slowly the clutch lever at the same time opening the throttle. As soon as the machine is running at a speed of about 10 miles per hour, reduce gas quickly and simultaneously tread on the change lever and open throttle quickly again. By doing this the second gear is engaged quickly and smoothly. When engaging the further gears, tread the lever downwards always exactly the same manner. When reversing the gear, pull the gear lever upwards. The light of the lamp in the switch box indicates which gear is just engaged at the moment. There are only two bulbs for four gears, one of them for the first and third gears, the other one for the second and fourth gears. You must therefore, learn to ascertain also by the sense of touch, which is gained by practice, which gear is engaged.

8/ When stopping, close throttle, pull the clutch lever, brake the machine, change the gear to the neutral position between the first and second gears, and then only, release the clutch lever. If you stop for a short period /at a road crossing and the like/ change to the first gear and keep the clutch disengaged. When braking always apply rear brake first and secondly the front brake, and only in the straight direction of running. After finishing the ride close the fuel tap, return the key to the zero position and take it out from the switch box.

9/ When riding at night set the most favourable distance of the fall of lights from the headlight upon the road, by turning the adjusting screw on the headlight.

Running in of the new machine.

The first six hundred miles should be run carefully since it is important to run the machine in properly, which has a great influence upon its output, long life and consumption. Do not ride at full throttle but at 1/3 maximum. Run the machine in preferably on ground not too hilly and at a speed not exceeding at the maximum 30 miles per hour, and do not attempt hills in top gear. Use the second gear and third gear as rarely as possible and the first gear when starting only. Give more oil in proportion of 1 : 20 i.e. 1/20 of a gallon of oil per 1 gallon of gasoline for first 600 miles then 1/25 of a gallon of oil to 1 gallon of gasoline. Do not leave the engine running for long after starting up since it is not cooled so well as during riding. When riding without engine running do not engage gear in order to prevent the gear wheels of the gear box from getting damaged. It is therefore advisable to start the engine before engaging the gears. Make sure occasionally that the connecting screws are not loosened.

Cleaning the machine.

Wash the machine always with water since cleaning it dry would damage the finish. Parts dirtied with oil and dust should be washed with parrafin. After washing, dry the machine with a chamois or soft flannel. While cleaning the machine, be careful the water does not get into the carburettor /to avoid this close the cover of the air filter/, head light and the brakes. Water remaining between the ribs of the cylinder after spraying, can be removed by running the engine for a short time. The water evaporates and the cylinder is prevented from getting rusty.

Lubricating.

Lubricate all the points provided with grease nipples for pressure lubrication occasionally. /Preferably after the maschine is washed, to force out water which might have entered the bearings/.
For lubrication of the other parts see Paragraphs "Lubrication of Engine" Gear Box and Clutch. In addition put a few drops of oil into the bearing of the foot brake pedal rod, the saddle pin, the stand pin etc. The rear springs should be lubricated after every 3.000 miles of running.

Pneumatic tyres.

The machine is provided with pneumatic tyres, size 3" x 19". Make sure always that they are correctly inflated, since this willprolong their life. At normal load /one rider/ a pressure 17 lbs/square inch for the front tyre and a pressure of 21 1/2 lbs/square inch for the rear tyre is suitable. When riding with a pillion passenger the rear tyre should be inflated to 25 lbs. The pressure is measured by a pressure gauge. If air escapes from the inflated tyre, it may be caused either by leakage in the valve or there may be a puncture in the tube.

The leakage of the valve is ascertained by removing protecting cap of the valve and moistening its end;if air bubbles form, it is a sign that the valve leaks. The valve may sometimes be sealed by tightening its cone. The other side of the protecting cap with a slot meant for this purpose, is used for thorough tightening. If this does not help, replace it by a new one. If the air escapes, even if the valve is in order, the inner tube is damaged und must themefore be removed from the wheel and repaired. After removing the wheel /see paragraphs "Front wheel" "Rear wheel"/, unscrew the valve cap and let all air out. Screw off the nut fixing the valve to the rim. Press the edge of the outer cover at a point opposite the valve into the hollow of the rim and pull the casing edge near the valve, after lifting by levers, over the edge cover of the rim. Take the inner tube carefully out and inflate it. Immerse the inflated tube under water. The puncture is shown at points where air bubbles escape. Now, dry the tube, let air out again and patch the opening. If possible, spread some talc over the patched place. Put the inner tube into the outer cover and inflate it partly, so as not to squeeze it in the cover when fitting it in. The outer cover is put on without using the tyre levers. Push the pneumatic tyre on, preferably by hand and pull the remaining part over by treading on tyre. Never pull the cover over the rim by force and damage the wire in the edge of the cover and thus the whole pneumatic tyre. Start pushing the cover on the rim at a point close to the valve.

Maintenance and chassis adjustement.

The front /primary/ chain is entirely enclosed in the chain case. It requires almost no maintenance since it runs in an oil bath. When replacing the chain, dismantle the clutch /after removing the wire, unscrew the 3 screws holding the spring down, take the springs down, take the springs and discs out/.

Release the chain wheel of the clutch /unscrew nut M12x1,5/ and push it out of the grooves by a special wrench. Simultaneously, after screwing off nut M 18 x 1,5 remove the other chain wheel. Remove the rear /secondary/ chain by turning the connecting link of the chain on to the rear chain wheel and removing the link by a wrench after pushing out the spring lock. After undoing the chain turn the wheel a little and pull the chain out. First of all clean the chain in gasoline. When dry, place it in /mildly/ heated grease for about three hours until oil penetrates into the links. Now take the chain out, leave the grease to solidity and wipe off the surface of the chain thoroughly. The assembly is carried out in such a manner that first of all the chain is put on the chain wheel of the speed box and thereafter upon the rear chain wheel where the two ends of the chain are connected by the connecting link. Adjust the chain after realeasing the axle of the rear wheel and the nut of the brake drum box, by uniformly turning the screws in the slits of the slides. Make sure that the rear sheel follows the trace of the front wheel. After setting, tighten the screw nuts again.

Carburettor.

The carburettor is comectly set at factory, the jet and the throttle valve are suitable chosen. No adjustment is therefore necessary except occasional cleaning. The fuel is led from the tank by a pipe into the float chamber. The fuel tank tap is provided with a screen catching all impurities. The fuel level in the float chamber is maintained at a constant height by the float and needle. The air is drawn in streams through the air cleaner at a great rate round the jet, drawing off the fuel getting out of the jet and spraying it around. The amount of mixture drawn in by the motor piston and thus also the output and speed are regulated by opening or closing the throttle valve with the needle connected by bowden wire to the twist grip on the right hand side of the handlebars. /For starting the engine see the paragraph "Riding"/.

If the engine is to start up well, the idling run must first of all be set correctly. This adjustment is very important and has a great influence upon the consumption and output of the engine. It is effected by an adjusting screw of the free coupling. To attain a lean mixture /when ticking over/ unscrew the screw a little. A richer mixture is ensured by screwing the screw down. If the mixture is lean the engine can only be started with difficulty, tending to fire back to the carburettor, gets overheated and loses its output. The exhaust pipe aquires a blueish tinge.

The rich mixture becomes evident from the heavy run of the engine and black smoke leaves the exhaust, the interior of the carburettor becomes black and a reserve reflection of the mixture takes place. When idling /the engine runs even with the gas grip entirely closed/. This is adjusted by securing the position of the slide by a stop screw to prevent it closing altogether. The stop should never be unscrewed entirely.

Maintenance of carburettor.

The carburettor should be cleaned regularly. It is cleaned best if its individual parts are dismantled and washed in clean gasoline. If the jet block is difficult to remove, hammer it out with a wooden block. Replace all damaged and worn parts by new ones. The presses of thefree trip gear are cleaned best by pulling a fine horsehair through it. Remove the air filter from the carburettor occasionaly and wash the filter body in clean gasoline.
During assembly make sure that the float chamber is vertical to the carburettor body so that the floating pis is freely clear of the opening of the cover.

Transmission gears and their control.

The four-speed gear box with gears in permanent engagement is made in one block with the engine. The mechanism of the foot starter is inside the box. Only the starter lever and the foot gear control lever are outside. The change of speed is described in the paragraph "Riding".

Lubrication of the gear box.

The oil in the gear box should be maintained at a constant level and replaced from time to time. The filling opening is in the left cover of the box closed by a plug. Before unscrewing the plug its surroundings should be cleaned thoroughly. When pouring oil in, unscrew the screw in the cover marked with the inscription "oil" and an altitudinal mark shows the oil level. A discharge screw placed at the bottom of the left part of the box is used for discharging the oil. Oil must be changed after 600 miles.

Clutch and how to disengage it.

The clutch is intended to interrupt the driving power of the motor to the rear wheel, which is necessary for effecting the changes of gear, the stopping, starting and the like. It has a great number of discs running in oil and is placed on the main shaft of the transmission gear box and covered with a cap. The clutch may be disengaged automatically when changing gear by the foot lever or also by the hand lever with Bowden cable placed on the left of the handlebars. If the clutch slips, adjust it by turning the screw passing through the right lid of the box. When disengaging by hand remove the right lid of the box and adjust the lenght of Bowden by a screw. The cork lining of the discs which wears out eventually should be replaced at your motorcycle service station.

Lubrication of the clutch.

The connecting rod of the clutch is lubricated in such a manner that the regulating screw is screwed out, the rod with the ball is pushed out, a small quantitty of grease is put into the opening and the disconnecting rod is pushed in again. After screwing the regulating screw in, adjust the clutch.

Decarbonization.

After having ridden 1.200 miles the decarbonisation is very important. The residium of the burnt mixture /carbon/ which has settled down on the piston, cylinder head and in the exhaust port is to be scraped off carefully. Simultaneously remove the carbon from the piston ring grooves so that the rings can move freely. Be careful not to damage the surfaces of the areas cleaned. After the carbon is removed, it is advisible to polish all the parts smoothly with fine emery cloth. The exhaust pipes and silencers, after about 6.000 miles are dismantled and cleaned by a wire brush. Do not enlarge the openings in the liners since every change has an influence upon the output and consuption.

Dismantling of the head and cylinder.

When dismantling the heads and cylinders unscrew first the rear fixing screws of the fuel tank and release the front screw, close supply from fuel tank to carburettor, disconnect the sparking plug cable and lift the tank a little. Unscrew the 4 nuts of the cylinder head remove the sparking plug, lift the head upand remove it. Before dismantling the cylinder disconnect the exhausts, move the piston by the starter lever to its lower position, lift the fuel tank up and push the cylinder out.
Cover the opening in the crank case with paper or clean cloth.

When pushing the piston with the rings into the cylinder it is advisable to proceed as per the illustrated method.

Replacement of the piston, piston pi and rings.

When removing the piston from the connecting rod of the crank shaft, take out the spring safety locks holding the pin on the piston bearing /preferably with pointed pliers/ push the pin out /by a wooden block or a special device in service station/ and remove the pin. After dismantling the piston remove the piston rings by means of three thin sheet iron. strips inserted between the piston ring and the piston, one in the middle and two at the end of the rings. Proceed in the same way when putting the rings on. If the piston rings are worn too much and if their slits are wider then 1 mm /the correct width is 0.2 mm/ they should be replaced. The width of the slit is ascertained by inserting the removed ring into the cylinder.

Removal of the covers and dismantling of the box.

The starting and gear changing lever is dismantling by being pushed out of engagement by two screws drivers or a special device, after entirely unscrewing the fastening screws. The right cover of the crank case is removed by screwing off the two screws and by pushing the lever of the foot brake. The left cover of the box is removed by screwing off the 8 screws, by simultaneously lifting it by means of two screw drivers in the gap of the cover. Before replacing it turn the pedal to its bottom position, by releasing one of the screws, so that it does not get in the way. To remove the whole engine from the frame it is necessary to

unscrew the fixing screws of the engine, to take off the right cover of the box, to disconnect the exhausts, release the top and bottom covers of the chain, undo the secondary chain, disconnect the three strand cable from the dynamo and contact for electric gear indication of the gear engaged. With the fuel tank lifted up, push the engine in parallel with the front frame carrier until the boss for the rear screw for the right cover clears the rear stop of the frame towards the left cover. When inserting the engine in the frame proceed in reversed order.

The two halves of the boxes are separated from each other by screwing off the 10 screws and pushing out the crank mechanism by means of a special device, preferably in service station. Prior to that, however, it is necessary to remove the cylinder with head, the carburettor cover and the carburettor itself including the branch.

When assembling the unit clean all the bearing surfaces carefully and apply again the packing coumpound "Hermetic" or other copound.

Dismantling of Rear Springs.

Release the screws securing the upper split frame holders. Unscrew the bottom screw entirely. Push out the axle, grasp the slide by its lower part and take it out of the engine together with the spring and the upper latch. When assembling it again procced in reversed order.

Handlebars.

The handlebars consist of two parts and are fixed in the steering head and sedured by adjusting screws. The twist grip of the right handlebar is removed by unscrewing the screw through the opening in the rubber of the grip and casing.

Removing the steering head.

Unscrew the 2 screws securing the steering head to the headlight holder and push it out of the grooves by knocking on it. After unscrewing the head /the screw/, the two nuts from the steering gear axle and the securing screw of the silencer in the bottom part of the frame, the whole fork will fall out downwards. /be careful that the balls do not fall out when the axle is removed/.

Dismantling the Tank.

When removing the tank, unscrew the four fixing screws, release the switch box, disconnect the cables to the switch box, the cable to the spark plug and the pipe for the supply of fuel from the cock. The switch box is released by screwing off the 3 screws fixing it to the tank. The fuel tank can also be screwed off for the purpose of cleaning or repairing .

Removing the front wheel.

Release the screw securing the slit end of the fork, screw out the axle, push out the wire cleat of the front brake from the gap of the lever and take the wheel out.

Removing the rear wheel.

Release the nut of the rear axle and push it out. Take out the distance piece between the slide and the wheel. After folding the rear part of the mudguard push the wheel out of the grooves of the brake drum. Take off the brake drum after screwing out the nut from the slide bush axle, after first having undone the rear chain.

Driving out the bearings form the wheel hubs.

Remove the safety device securing the bearing and from the opposite side drive out, by a pipe, the other bearing towards the hub until the bearing which has been unlocked, falls out. Remove the distance piece and drive the rest of the bearing out to the other side.

Adjusting the brakes.

Adjust the rear brake by turning the wing nut at the end of the brake tension rod.. In the front brake, after releasing the cleat, pull the wire out a little by a pair of pliers and secure it by retightening the cleat.

Dismantling the fork.

Take the wheel and the mudguard out, release the collets securing the rubber collars, and screw the end boxes with the steel springs out. The sabres are pushed out after relessing the two securing screws of the carrier and unscrewing the four screws in the rear flutch part of the head light.

Dismantlich the head light.

After screwing out the securing screw of the headlight socket, remove the galss with the rim by tilting the bottom-side up, disconnect the cables from the terminals and the speedometer, by unscrewing the nut on the speedometer drive. Screw-out the two screws connecting the fork holder to the steering head and drive the holder out, preferably with a wooden block.

Electric devices.

Ignition: dynamo-battery. The dynamo is D.C., shunt, four-pole, 6-Volt, Mark JAWA. Output of the dynamo is max. 45 W. Tension: 6 Volts. An automatic voltage regulator with switch and circuit breaker which can be turned by about 16° /advanced ignition regulation/ is connected to the dynamo.

Battery. 7 Ah /14 Ah/ 6 V, leaden, with electrolite-diluted sulphuric acid. The battery is placed in a box at the left of the machine. Near the battery, in a casing, in a fuse for 8 A to the ČSN 72581 Standard Specifications.

Switch box.

It is situated in the fuel tank and distributes the current from the dynamo or battery to the individual points. It contains a change-over switch, an ignition coil and control bulbs.

Current points.

In the head light is a double filament bulb of 6V, 25/25W, shape B to the ČSN Standard Specifications No. 72601, and a parking bulb of 6 V, 1,5 W shape H to the ČSN No. 72601. In the rear lamp is a bulb of 6 V, 3W shape G to the ČSN Standards No. 72601. The elctric horn of 6V, 3 A is underneath the fuel tank. The sparking plug with M 14 thread is in the cylinder head. Its contacts must be kept clean. The best sparking is attained at a distance of the electrodes of 0,5 mm.

Cables.

The connections are made of varnished auto-cables having a section of 1 sq.mm, From the dynamo to the switch box is a three-strand cable of 3x1 sq.mm., from the light change-over switch on the handlebars to the head light is a three-strand cable of 3x1,5 sq.mm. The cable to the sparking plug has a section of 1,5 sq.mm. Inspect the cables carefully to make sure

that they are not damaged and do not cause short circuits or bad function of the electric equipment. The ends of the cables should have brass end-boxes or should be soldered.

Maintenance of the electric equipment.

Dynamo. The dynamo stator is secured by two screws M6 x 75 to the box. It supports a circuit breaker which can be turned by 16° /regulation of advanced ignition/, the voltage regulator with automatic switch, the terminal box, carbons, condenser etc. The terminals on the terminal box are marked as follows:

1 connection of cable to sparking plug

51 connection of battery /plus-pole/

61 connection of control bulb of ignition

The rotor is placed on the crank shaft and secured by a screw together with the cam. It is removed by a special screw M8 x 50, after screwing out the securing screw and removing the cam. After 3.000 miles inspect and, if necessary adjust the distance of the breaker contacts, and the advanced ignition. The distance of contacts should be abt.0,3 - 0,4 mm. The felt or the scraper should be kept saturated with grease and in contact with the cam. The cam pin should be slightly oiled. The advanced ignition is adjusted by turning the carrier of the breaker, after releasing the two screws. After 6.000 miles ascertain the wear and tear of the carbons. If they are lower than 8 mm replace them. If they do not move freely in the holders, they are dirty and must therefore be taken out and cleaned with benzine. Do not use emery paper or file for cleaning the friction surfaces or the carbons. The collector is cleaned by a cloth soaked in benzine. If the dynamo requires repairs send it to a reliable service station. Before starting any work on the dynamo, remove the fuse of the battery.

The Voltage regulator with automatic switch is fixed to the stator of the dynamo. It maintains constant voltage of the current supplied by the dynamo and changes the battery current over to the dynamo current. The battery is after-charged by the excess current. Any inexpert handling of this equipment is detrimental and the factory does not guarantee the dynamo with disturbed adjustment of the regulator contacts.

Battery.

Insufficient care of the battery causes stoppages in the whole electric set, its premature wear or even destruction. The maintenance is simple and consists merely in maintaining the liquid level/ the level should be abt 5-8 mm above the upper edge of the plates/, correct density and charging. Inspect the level frequently, at least once every fortnight. If the acid has not been poured out, supplement it with distilled water; if it has been poured out, with correctly diluted acid. Supplement it still before running, if possible, and do not leave the newly supplemented battery standing longer than 10 hours. Every 3 months have the acid density checked by your service station. It should be 28-30° Be /specific gravity 1,24-1,26/. The correct density of acid has an influence upon the charging and, in winter, protects the battery from freezing up.

Discharge of battery	Density	Freezing point
1/4	1,24	- 40 ° C
1/2	1,23	- 30 ° C
3/4	1,185	- 20 ° C
completely	1,14	- 10 ° C

If you do not ride for a long period, take the battery out, put it in a dry room and maintain it as if it were in the machine, i.e. ascertain the condition of charging, supplement distilled water and after-charge the battery. It is advisable, at least every two months to discharge it to half its value /0.5 A for tension or one chamber, 1.8 V/ and charge it again with 0,5 A current.

Switch box.

The switch box is fixed in the fuel tank by means of three screws M 6 x 65 and rests on a rubber ring. It contains an ignition coil, control bulbs, terminal box and a five-pole change-over switch.

Position of the change-over switch:

0 All electric points cut out, key may be pushed in or out,

1 Ignition and horn cut in /when travelling by day/

2 Ignition, horn, parking and rear lights cut in /when travelling at night in cities/

3 Ignition, horn, large and rear lamps cut in. The large lamp may be changed-over from direct to dimmed light by a change-over switch on the handlebars /when travelling at night on free roads/,

4 Parking and rear lamps switched on /parking at night/ Key may be taken out,

5 Ignition and horn cut in directly from dynamo. Use only if battery should fail. /Lamps are not burning and starting is difficult. Push the machine at second speed.

Marking of terminal board in the bottom part of the switch box:

1 Cable of spark plug to terminal of dynamo 1

30 cable of plug-pole of battery

51 cable of dynamo plus-pole to dynamo terminal 30

54 cable to horn

56 cable to light change-over on handlebars.

"57" cable to parking lamp in headlight
"61" cable of ignition control lamp to dynamo
"58" cable to rear lamp
"1-3-N-2_4" three-strand cable to change-over switch of electric indicator of the speed cut in.

Function of the electric equipment, when starting the motor and during riding.

After pushing in the key into the switch box and turning to position "1-2,3" the red bulb must be burning which means that the dynamo does not supply current to the consumers which take the current from the battery. If the neutral is cut in between first and second gear /which should always be the case before starting/ the white bulb also will be burning. If after starting, the speed of the motor rises to more than 1,300 R.p.m. the red bulb will go out, the battery will, not discharge, the consumers will take current from the dynamo, or the battery will be charged by the excess of current. If the red bulb is not burning in the above positions, inspect the fuse or the battery to see whether it is burnt out or whether the bulb is damaged. If the fuse and the bulb are in order, but the bulb is not burning, or if it is burning intermittently during running /flickering/ it is necessary to inspect the electric equipment in expert workshops /fault in the switch/. The broken or burnt bulb is taken out from the switch box after removing the lid by pressing and turning to the left.

The control lamp and the two lamps indicating the gears have 8-10V:0, 8-1W as per the ČSN Standard Specifications shape J.

How to locate troubles.

Indication of troubles:

Engine cannot be started - Engine has stopped

	Carburettor can be overflooded		Carburettor cannot be overflooded
Plug gives spark	**Plug does not emit sparks**		
Engine has no compression	**No spark at cable end**		
	Ignition control lamp is burning	Ignition control lamp is not burning	Spark is at cable end

Ascertained trouble	Remedy
No fuel in the tank	Pass fuel from reserve /for abt. 6-9 miles is enough/ and add mixture to tank as quickly as possible
Supply pipe cock closed	Open the cock
Cleaner clogged above cock	Unscrew cock and clean the cleaner
Pipe or screen in carburettor	Remove piping and blow it through, take out carburettor, diamantle nozzle and clean it.
Hole in lid of filling opening of fuel tank clogged	Clean air opening in lid
- - - - - - - - - - -	
Oiled plug	Remove plug and clean it
Damaged insulation of plug	Replace plug
Short circuit between contacts of plug	Put contacts apart abt. 0.5 mm
Great distance between plug contacts	Put contacts nearer to each other, abt. 0.5 mm apart
- - - - - - - - - - -	
Key not inserted into switch box	Put key in and turn in to correct position
Burnt fuse of battery	Replace fuse
Battery discharges	Change over switch to position "5" and start machine by pushing Get Battery charged.
- - - - - - - - - - - - -	
Breaker contacts dirtied.	Clean contacts by cloth soaked in benzine
Defective contacts of breaker	Get contacts repaired or replaced
Plug cable broken or released	Exchange cable or connect and insulate with insulating tape and replace as soon as possible
Burnt insulation of cable	Wind cable with insulating tape and replace soon
Damaged condenser	Replace
Damaged insulating of winding	Get repaired by JAWA dealer
Water in beaker	Blow out water, wipe out carefully or leave to dry.

Piston ring broken	Remove ring from piston and replace
Piston ring caked	Remove ring, clean it and put on again
Packing under plug leaking	Replace packing

Engine running incorrectly

It leaps over	Engine knocks
Irregular spark	Correct spark

Ascertained trouble	Remedy
Engine overheated	Allow engine to cool down and run at low speed
Plug contacts glow, bad plug	Replace sparking plug
Much carbon in cylinder head	Take off head and remove carbon
Brake jaws do not separate from drum	Inspedt springs of brake jaws and clean drum
Greatly advanced ignition	Adjust advanced ignition by turning carrier of breaker
Exhaust silencer clogged	Take off silencer, dismantle and clean it
- - - - - - - - - - -	
Water or oil in carburettor	clean carburettor
Fuel supply in carburettor almost used up	Open fuel cock, pass reserve over, supplement mixture, inspect supply pipe
Temporary short circuit of cable connection to cylinder	Wind insulating tape round cable, or preferably replace it
Lean mixture	Adjust carburettor
Badly mixed gasoline and oil mixture	Stir mixture well before pouring it into tank
- - - - - - - - - -	
Unsuitable plug	Replace sparking plug
Oil smeared plug	Take sparking plug out and clean it
Great distance of plug contacts	Adjust distance of plug contacts to a-bt.0,5 mm
Dirty breaker contacts	Clean contacts with cloth soaked in benzine
Badly adjusted breaker contacts	Adjust distance of contacts to abt. 0.35 mm
Temporary short-circuiting of cable connection to cylinder	Wind contact with insulating tape, or replace it.

Engine running incorrectly	Engine cannot be started or it has stopped
	Carburettor can be overflooded
Engine has not sufficient output /does not pull/	Engine has compression
	Plug emits sparks

Temporarily /from time to time/	Permanently /all the time/	Carburettor not in order	Carburettor is in order

Ascertained trouble	Remedy
I n s u f f i c i e n t lubrication	Make sure that oil is always well mixed with gasoline in proportion of 1:25
Bowden cable to carburettor broken	Replace cable
Bad packing between carburettor and cylinder	Replace packing
M u ch carbon settled in cylinder head, exhaust vents and silencers	Take off head, cylinder, exhaust and remove carbon
Fuel supply clogged partly	Dismantle piping and clean it
Bad adjustment of ignition	Adjust distance of breaker contacts and advanced ignition
Carburettor not set /bad mixture/	Adjust free trip, needle position and clean air cleaner
Exhaust silencers clogged	Dismantle silencers and remove carbon settled therein
Interior of cylinder and piston worn	Regrind cylinder, fit new piston rings, ascertain wear of piston bearing etc. at service station
Engine draws in air /box halves of carburettor branch are not packed properly/	Separate box halves, clean contact surfaces, apply packing compound and assembly firmly. Replace packing underneath carburettor branch
Nozzle clogged	Take out nozzle and clean it
Float leaking	Solder float or replace it
Float needle does not close	Replace damaged needle or repair it
Fuel supply or cleaner partly clogged	Clean supply or cleaner
Bowden cable or gas jams	Lubricate cable or replace
Motor /Engine/ overheated	Leave engine cool down and maintain it at low speed
Faulty sparking plug	Replace sparking plug.

Table of lubrication of 250 cu.cm. JAWA

After ....miles	ubrication point	Number of lubricating points	Type of Lubricant	Note
	Fork	2	Vaseline	
	Rear springs	2	Vaseline	
	Saddle	1	Oil	a few drop
300	Hand brake lever	2	oil	dtto
	Clutch lever	2	oil	dtto
	Foot brake lever	1	vaseline oil	
	Rotary gas grip	1	vaseline	on pushing grip out
	Disconnecting rod of clutch	1	dtto	
600	Starter lever	1	oil	a few drops
	Stand	1	oil	dtto
	Supplementing oil in speed gear box	1	oil	check level frequently
	Front wheel	1	vaseline	also after spraying washing of machine
	Rear wheel	1	Vaseline	
	Belt of breaker	1	dtto	
1500	Breaker cam pin	1	oil	a few drops
	Brake keys	2	oil	dtto
	Speedometer drive	1	oil	after dismant.
	Front brake cable	1	dtto	a few drops
	Clutch cable	1	oil	dtto
3000	Steering gear head	2	vaseline	after dismantl as per directions
	Secondary chain	1	vaseline	dtto
	Gear box Replacement of oil	1	oil	-

Description of pictures.

1/ How to use reserve of fuel in reserve tank

4/ Neutral engaged, engine runs

1st or 3rd gear engaged

2nd or 4th gear engaged

5/ Closing of air cleaner of carburetter

6/ Adjusting of headlight

7/ Front wheel

8/ Rear wheel

7a/ Removing front wheel

8a/ Removing rear wheel

9/ Chain adjustment

10/ Gear box dismantled

11/ Dismantling gear control lever

12/ Dismantling kick-starter lever

13/ Removing left cover

14/ Removing right cover

15/ Dismantling cylinder head

16/Dismantling cylinder

17/ Crankshaft and cy inder with head

18/ Exhaust pipes and silencers

19/ Replacement of gudgeon pin

20/ Replacement of piston ring

21/ Carburettor, float chamber, mixing chamber, air cleaner

22/ Carburettors unassembled

23/ Gear control lever, clutch driving plates, operating rod, adjusting screw, automatic gear control cam. Scheme of automatic declutching.

24/ Clutch adjusting

25/ Clutch complete

27/ Scheme of gears engaged
1st gear, 2nd gear, 3rd gear, 4th gear, crankshaft primary chain, gear box in neutral position, clutch, secondary chain, brake drum, rear wheel.

28/ Gears and starter

29/ control mechanisms

30/ Filling gear box with oil

31/ Dismounting steering head

32/ Fork complete

33/ Dismounting fork

34/ Dismounting head light

35/ Frame complete

36/ Dismounting rear springing

37/ dtto

38/ Position of electrical equipment. Head light, switch box, horn, rear lamp /tail lamp/, plug, dynamo, battery, fuse

39/ Wiring diagram, triple-wire cable, contactor, switch box, over switch, push button, fuse, battery, tail lamp, dynamo, voltage regulator.

40/ Adjusting pre-ignitio n

41/ Rotor and stator of dynamo

42/ Switch box scheme, switch box, over switch, wiring, ignition key position, machine, standstill, I. riding by day, II. riding through the town, III. riding by night, IV. parking, V. riding without battery.

43/ Tool

25X1A